

Exercise 3 – Using the paper on the following page:

- Plot the following measurements on the attached graph paper using an offset of 0.0:
 - 6.00 feet, 10.0 cfs
 - 8.65 feet, 100 cfs
 - 29.0 feet, 2500 cfs
- Connect the measurements using a smooth curve
- Next plot the point and draw a smooth curve using an offset of 7.0. Is 7.0 too high or too low?
- Determine the scale offset needed to straighten the line using Johnson's method.
 - See an **example** of the use of Johnson's method on the next page.

Example of how to use Johnson's method

- The rating shown below is plotted using an offset of 0.0. Using this rating it can be seen that:
 - At 7 feet $Q = 14.14$ cfs – Therefore 7 ft. is G_2 and 14.14 is Q_2
 - At 30 feet $Q = 7,812$ – Therefore 30 ft. is G_1 and 7,812 is Q_1
 - $Q_3 = (Q_1 \times Q_2)^{1/2} = 332$ cfs
 - Gage height for 332 cfs = 12.1 (determined from rating) – This is G_3
 - $e = [(30 \times 7) - (12.1)^2] / [(30 + 7) - 2(12.1)] = 4.97$

Note: Even though the solution gives a value of 4.97, it is generally best to only carry offsets to the nearest tenth of a foot. They just get too confusing and difficult to plot with the extra significant figures.



